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PRIMARY IRRITATION EVALUATION PROGRAM STUDY  
STUDY NUMBERS 33-016-70 THRU 33-018-70, 33-020-70 AND 33-021-70  
JANUARY-MARCH 1970



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EDGEWOOD ARSENAL, MD. 21010

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USAEHA-MT

DEPARTMENT OF THE ARMY  
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY  
EDGEWOOD ARSENAL, MARYLAND 21010

25 MAY 1970

PRIMARY IRRITATION EVALUATION PROGRAM STUDY  
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ABSTRACT

Five candidate repellents were evaluated on New Zealand White rabbits for their potential to cause skin and eye irritation. This was used as a basis for making the following recommendations concerning their use on humans.

- a. There is no restriction for acute application of ENT-70144-Ga to the human skin. However, it is recommended that the compound be restricted to areas other than the face and be used with extreme caution in order to avoid contact with the eyes or mucosa.
- b. ENT-70087-Ga, ENT-70089-Ga, ENT-70091-Ga, and ENT-70147-Ga should be used only on human skin found by examination to have no abrasions or may be used in clothing.
- c. Those compounds found to be irritating to the skin or the eyes should be resubmitted in the form and at the concentration of their intended use so that their irritation potential can be reexamined.



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1. REFERENCES.

- a. Memorandum of Understanding between the Department of the Army, Office of The Surgeon General; Armed Forces Pest Control Board and the United States Department of Agriculture effective July 1967.
- b. Letter, US Department of Agriculture, Gainesville, Florida, dated 19 August 1969, to this Agency.
- c. Toxicology Division Procedural Guide, USAEHA, 1968 (Revised 1969).

2. PURPOSE. This report classifies the candidate repellents listed according to the categories described in the Appendix as determined by a study of their effects on the skin and eyes of rabbits. The information contained in this report is intended only for guidance in further entomological testing of the compounds.

3. SUMMARY OF FINDINGS. The chemical formula and purity of the candidate chemicals were not furnished with the request to perform the primary irritation evaluations. The formulations of the candidate chemicals were classified "commercially discrete" by the manufacturer. The categories assigned to the test compounds are based upon their ability to cause primary irritation of the skin and eyes of New Zealand White rabbits. The following compounds are classified according to the categories listed and defined in the Appendix:

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Study Numbers	ENT Nos.	PIEP Categories		Compound Identifying Symbols
		Skin	Eyes	
33-016-70	70087-Ga	II	-	Commercially discrete S. C. Johnson 2932-R-17-3
33-017-70	70089-Ga	II	-	Commercially discrete S. C. Johnson 2932-R-24-2
33-018-70	70091-Ga	II	-	Commercially discrete S. C. Johnson 2932-R-27-3
33-020-70	70144-Ga	I	F	Commercially discrete S. C. Johnson 2932-R-88
33-021-70	70147-Ga	II	-	Commercially discrete S. C. Johnson 2932-R-118

4. RECOMMENDATIONS. Recommendations pertaining to individual compounds in this study can be found in the Appendix by referring to each compound's PIEP category. Those compounds found to be irritating to either the skin or the eyes should be resubmitted in the form and at the concentration of their intended use so that their irritation potential can be reexamined.

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APPENDIX  
DEFINITIONS OF CATEGORIES OF COMPOUNDS  
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Category I - Compounds producing no primary irritation of the intact skin or of the skin surrounding an abrasion.

(Interpretation - There is no restriction for acute application to the human skin.)

Except when specifically requested for individual compounds, the following Eye Injury Categories, A through F, are determined only for those compounds which are in Category I.

- A. Compounds noninjurious to the eye .  
(Interpretation - Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.)
- B. Compounds producing mild injury to the cornea.  
(Interpretation - Compounds should be used with caution around the eyes.)
- C. Compounds producing mild injury to the cornea and, in addition, some injury to the conjunctiva.  
(Interpretation - Compounds should be used with caution around the eyes and mucosa.)
- D. Compounds producing moderate injury to the cornea.  
(Interpretation - Compounds should be used with extreme caution around the eyes.)
- E. Compounds producing moderate injury to the cornea and, in addition, producing some injury to the conjunctiva.  
(Interpretation - Compounds should be used with extreme caution around the eyes and mucosa.)
- F. Compounds producing severe injury to the cornea and to the conjunctiva.  
(Interpretation - Compounds should be used with extreme caution. It is recommended that use be restricted to areas other than the face.)

APPENDIX (Cont)

Category II - Compounds producing no primary irritation of the intact skin but producing mild primary irritation of the skin surrounding an abrasion.

(Interpretation - Compounds should be used only on human skin found by examination to have no abrasions or may be used in clothing.)

Category III - Compounds producing mild primary irritation of the intact skin and of the skin surrounding an abrasion.

(Interpretation - Compounds should be used with extreme caution on the skin or may be used in clothing.)

Category IV - Compounds producing moderate primary irritation of the intact skin and of the skin surrounding an abrasion.

(Interpretation - Compounds should not be used directly on the skin but may be used as clothing impregnants with extreme caution.)

Category V - Compounds producing moderate primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, ulceration and/or eschars.

(Interpretation - Compounds should not be used in studies involving human skin contact.)

Category VI - Compounds producing severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, ulceration and/or eschars.

(Interpretation - Compounds should not be used in studies involving human skin contact.)

Category VII - Compounds impossible to classify because of staining of the skin or because of other masking effects due to physical properties.

(Interpretation - Compounds are not suitable for use on humans.)

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
ENT-70087-Ga ENT-70089-Ga ENT-70091-Ga Toxicity ENT-70144-Ga ENT-70147-Ga S. C. Johnson 2932-R-17-3 S. C. Johnson 2932-R-24-2 S. C. Johnson 2932-R-27-3 S. C. Johnson 2932-R-88 S. C. Johnson 2932-R-118						

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